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[54] **HIGH TEMPERATURE AND ABRASION RESISTANT TEMPERATURE MEASURING DEVICE**

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[58] **Field of Search** 136/200, 230, 136/231, 232, 233, 234, 242; 374/179, 208, 209, 139, 140; 432/124

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[57] **ABSTRACT**

A temperature measuring device for measuring the temperature of an abrasive particulate material of the type found, for example, in rotary calcining kilns and the like. The device comprises a temperature sensor producing an indication of a temperature to which the sensor is exposed, circuitry or the like for connecting the temperature sensor to remote equipment for converting the indication to a recognisable form and a protective element shielding the temperature sensor from damage by the abrasive particulate material. The protective element comprises a layer of ceramic material having a matrix of alumina reinforced with 5 to 50% by volume (based on the total volume of the ceramic material) of particles of silicon carbide having an average size, at least in two dimensions, within the range of about 5 to 60 microns. The protective element provides good abrasion, heat-shock and mechanical resistance while exhibiting sufficient thermal conductivity to avoid undue inaccuracies in the temperature measurements.

25 Claims, 3 Drawing Sheets